

WHAT IS CLAIMED IS:

- 1 1. A method for decontaminating chemical and biological warfare agents, comprising the
2 steps of:
3 mixing a peroxygen compound with a bleach activator, wherein a peroxycarboxylic
4 acid is generated in-situ; and,
5 contacting a warfare agent with the generated in-situ peroxycarboxylic acid, effective
to react with the warfare agent.
2. The method of claim 1, wherein the step of contacting the warfare agent effectively
detoxifies the warfare agent.
3. The method of claim 1, wherein the peroxygen compound comprises a compound
selected from the group consisting of percarbonate, perborate and hydrogen peroxide.
- 1 4. The method of claim 3, wherein the peroxygen compound comprises a compound
2 selected from the group consisting of peracetate, perborate monohydrate, perborate
3 tetrahydrate, monoperoxyphthalate, peroxymonosulfate, peroxydisulfate,
4 percarbonate and hydrogen peroxide.

1 5. The method of claim 1, wherein the bleach activator comprises a compound selected
2 from the group consisting of nonanoyloxybenzene sulfonate (NOBS),
3 tetraacetythylenediamine (TAED), lauroyloxybenzene sulfonate (LOBS) and
4 decanoyloxybenzenecarboxylic acid (DOBA).

1 6. The method of claim 1, wherein the step of mixing further comprises a surfactant
composition.

7. The method of claim 6, wherein the surfactant comprises an amine oxide.

8. The method of claim 6, wherein the surfactant composition comprises a
microemulsion.

1 9. The method of claim 8, wherein the mixture of peroxygen compound, bleach activator
2 and microemulsion comprises a reacted compound formed from about 20 wt% to
3 about 50 wt% peroxygen compound, from about 2 wt% to about 20 wt% bleach
4 activator and from about 50 wt% to about 95 wt% microemulsion.

1 10. The method of claim 8, wherein the microemulsion comprises a surfactant component
2 having one or more surfactants, water and hydrocarbon compound.

- 1 11. The method of claim 9, wherein the microemulsion comprises the surfactant
2 component in an amount of from about 20 wt% to about 90 wt%, water in an amount
3 of from about 5 wt% to about 40 wt%, and hydrocarbon compound in an amount of
4 from about 5 wt% to about 40 wt%.
- 1 12. The method of claim 1, further comprising the step of removing the reacted warfare
2 agent and peroxydicarboxylic acid.
13. The method of claim 1, wherein the step of contacting the warfare agent effectively
detoxifies the warfare agent.
14. A chemical and biological warfare agent decontaminating solution, comprising:
a peroxygen compound; and,
an effective amount of bleach activator, wherein the peroxygen compound and bleach
activator are mixed in a surfactant composition prior to contacting a warfare agent.
- 1 15. The decontaminating solution of claim 14, wherein the surfactant composition
2 comprises a microemulsion.
- 1 16. A kit for preparing a peroxydicarboxylic acid decontaminating solution comprising the
2 solution of claim 14 prior to mixing.

- 1 17. An in-situ generated peroxycarboylic acid composition for decontaminating chemical
2 and biological warfare agent formed from the process comprising the step of mixing
3 a peroxygen compound with a bleach activator in a surfactant composition, wherein
4 the peroxycarboxylic acid is generated in-situ prior to contacting a warfare agent.
- 1 18. The in-situ generated peroxycarboylic acid composition of claim 17, further
comprising a microemulsion.
19. The in-situ generated peroxycarboylic acid composition of claim 18, comprising a
peroxygen compound of hydrogen peroxide, a bleach activator of
nonanoyloxybenzene sulfonate (NOBS), and a microemulsion of didecyl methylamine
oxide, decyl dimethylamine oxide, decane, water and sodium carbonate.
- 1 20. The in-situ generated peroxycarboylic acid composition of claim 18, wherein the in-
2 situ generated peroxycarboylic acid composition is formed immediately prior to use.